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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,977	03/24/2004	Wesley R. Bussman	31715-00060	4452

24919 7590 01/23/2006

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EXAMINER	
GRAVINI, STEPHEN MICHAEL	
ART UNIT	**PAPER NUMBER**
3749	

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/807,977	BUSSMAN ET AL.	
	Examiner	Art Unit	
	Stephen Gravini	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *20040617*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Lifshits (US 6,062,848). Lifshits is considered to disclose an invention comprising:

one or more an array of burners on a wall or the floor of the furnace that introduce a combustible fuel gas lean-air mixture into a combustion zone adjacent to the burner or burners (please see figure 2 for the claimed array configuration); and

one or one or more arrays (again please see figure 2 for the claimed array configuration) of secondary fuel gas nozzles **44** located separate and remote from the radiant wall burners **12**, and means (please see means disclosed at column 11 line 65 through column 12 line 15) for introducing secondary fuel gas into the secondary fuel gas nozzles whereby the secondary fuel gas mixes with flue gases in the furnace and combusts with excess air, lowers the temperature of the burning fuel gas and reduces the formation of NOx (please see column 3 lines 47-57 for the disclosed temperature lowering and NOx reduction features). Lifshits is also considered to show the claimed opposite side positions with offset rows on one or more walls or floor with an array of burners and array of secondary fuel gas nozzles in figures 1 and 2.

Claims 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Knight (US 5,718,573). Knight is considered to disclose a method comprising:

providing a fuel lean mixture of fuel gas and air to individual radiant wall burners arranged in rows along a wall of the furnace (please see column 3 line 67 through column 4 line 10);

causing the mixture of fuel gas and air to flow radially outward from each radiant wall burner across the wall of the furnace whereby the mixture contains excess air and is burned at a relatively low temperature and flue gases having low NOx content are formed therefrom (please see column 3 lines 38-51 and column 4 lines 50-52); and

providing secondary fuel gas from secondary fuel gas nozzles located whereby the secondary fuel gas mixes with flue gases in the furnace and combusts with excess air from the radiant wall burners, lowers the temperature of the burning fuel gas and reduces the formation of NOx (please see column 1 lines 8-63 wherein the disclosed flash back flame resistance inherently anticipates the claimed temperature lowering because both prevent ignition due to fuel flashpoint temperatures being exceeded to cause combustion). Knight is also considered to show the claimed opposite side zone from the burners in figure 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 5-9 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lifshits in view of Johnson (US 5,688,115). Lifshits is considered to disclose the claimed invention, as discussed above under the anticipatory rejection, except for the claimed furnace floor burners. Johnson, another burner configuration, is considered to disclose furnace floor burners at column 3 line 66 through column 4 line 9. It would have been obvious to one skilled in the art to combine the teachings of Lifshits with the furnace floor burners, considered disclosed in Johnson for the purpose of controlling the fuel trajectory in order to allow lower temperature and NOx reduction. Furthermore Lifshits is considered to disclose the claimed invention except for the claimed radiant, cylindrical, or cabin furnace. It would have been an obvious matter of design choice to provide a radiant, cylindrical, or cabin furnace since the type of furnace is irrelevant such the claimed invention may be performed by the prior art of record regardless of the type of furnace claimed.

Claims 15-19 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knight in view of Johnson. Knight is considered to disclose the

claimed invention, as discussed above under the anticipatory rejection, except for the claimed furnace floor burners. Johnson, another burner configuration, is considered to disclose furnace floor burners at column 3 line 66 through column 4 line 9. It would have been obvious to one skilled in the art to combine the teachings of Knight with the furnace floor burners, considered disclosed in Johnson for the purpose of controlling the fuel trajectory in order to allow lower temperature and NOx reduction. Furthermore Knight is considered to disclose the claimed invention except for the claimed radiant, cylindrical, or cabin furnace. It would have been an obvious matter of design choice to provide a radiant, cylindrical, or cabin furnace since the type of furnace is irrelevant such the claimed invention may be performed by the prior art of record regardless of the type of furnace claimed.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-28 of copending Application No. 10/758,642. Although the conflicting claims are not identical, they are not patentably distinct from each other because current application is a broader recitation than the pending application in that the co-pending injecting, combusting, and introducing claimed steps are not limitations in the presently claimed invention and that it would have been obvious to one skilled in the art to omit those steps in seeking patent protection for the claimed invention.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Gravini whose telephone number is 571 272 4875. The examiner can normally be reached on normal weekday business hours (east coast time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg can be reached on 571 272 4828. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SMG
January 18, 2005

Stephen Gravini